

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau

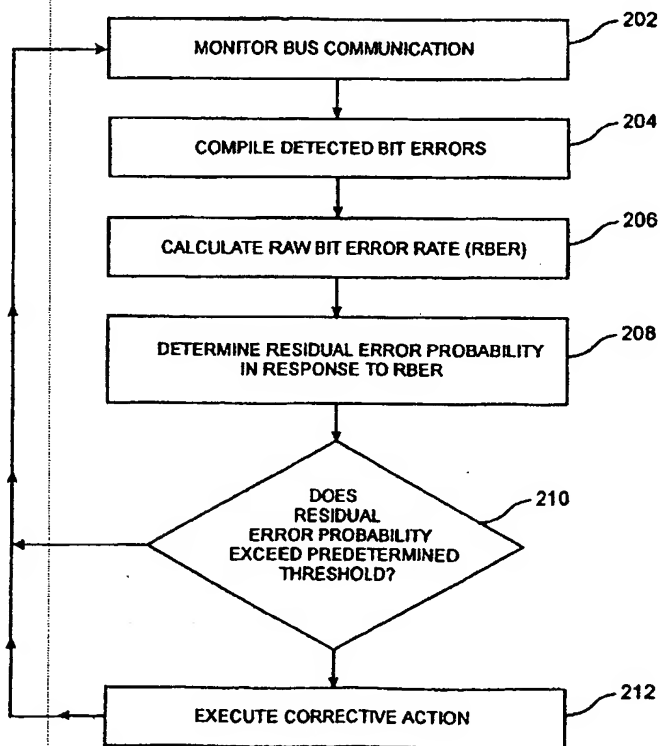


(43) International Publication Date  
14 August 2003 (14.08.2003)

PCT

(10) International Publication Number  
**WO 03/067804 A1**

- (51) International Patent Classification<sup>7</sup>: **H04L 1/20**
- (21) International Application Number: **PCT/US03/04027**
- (22) International Filing Date: **7 February 2003 (07.02.2003)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
**10/071,604** **8 February 2002 (08.02.2002)** **US**
- (71) Applicant: **SCHNEIDER AUTOMATION INC.**  
[—/US]; One High Street, North Andover, MA 01845 (US).
- (72) Inventors: **WHITE, William, A.**; 97 Sunset Road, Carlisle, MA 01824 (US). **HILL, Lawrence, W.**; 80 Shurtleff Road, North Eastham, MA 02651 (US).
- (54) Title: **RESIDUAL ERROR HANDLING IN A CAN NETWORK**
- (74) Agent: **GOLDEN, Larry, I.**; Square D Company, 1415 S. Roselle Road, Palatine, IL 60067 (US).
- (84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR).
- Published:  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



(57) Abstract: A method and apparatus for improving communication throughout a network is disclosed. The network includes a module capable of transmitting messages in response to a change of state. Bit errors transmitted within network are detected and a detected bit error rate is calculated. A residual, i.e., undetected, error probability is determined in response to the detected bit error rate. Corrective action towards reducing the effects of the residual errors is taken, e.g., retransmission of messages, in response to the residual error probability exceeding a predetermined threshold.

WO 03/067804 A1

BEST AVAILABLE COPY

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/04027

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04L1/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 828 672 A (TURCOTTE ERIC ET AL) 27 October 1998 (1998-10-27)	1,3,5-9, 11, 13-21, 23, 25-29, 31, 33-37, 39,41-44 4,12,24, 32,40
Y	column 1, line 13 - line 18 column 2, line 22 - line 39 column 4, line 11 - line 27 column 6, line 30 - line 56 claim 1  --- -/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

2 June 2003

Date of mailing of the international search report

17/06/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2200 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Schiffer, A

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 03/04027

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 835 507 A (WU JENG-JYE ET AL) 10 November 1998 (1998-11-10)  column 1, line 6 - line 29 column 1, line 45 - line 50 column 2, line 7 - line 42 column 3, line 1 - line 19 column 4, line 14 - line 20 column 4, line 46 - line 59 ---	1-3, 5-11, 13-16, 29-31, 33-39, 41-44
Y	DE 37 19 283 A (BOSCH GMBH ROBERT) 22 December 1988 (1988-12-22) page 2, line 58 - line 62 page 3, line 50 - line 53 page 4, line 3 - line 6 page 5, line 37 - line 38 ---	4, 12, 24, 32, 40
A	JOACHIM CHARZINSKI: "Performance of the Error Detection Mechanisms in CAN" PROCEEDINGS OF THE 1ST INTERNATIONAL CAN CONFERENCE, September 1994 (1994-09), pages 1.20-1.29, XP002242563 Mainz, Germany cited in the application the whole document ---	1-44
A	EP 1 107 500 A (MARCONI COMM LTD.) 13 June 2001 (2001-06-13) column 2, line 7 - line 20 -----	1-44

## INTERNATIONAL SEARCH REPORT

 Internat Application No  
 PCT/US 03/04027

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5828672	A	27-10-1998	AU 7458998 A BR 9808699 A WO 9849800 A1 US 6073257 A	24-11-1998 11-07-2000 05-11-1998 06-06-2000
US 5835507	A	10-11-1998	NONE	
DE 3719283	A	22-12-1988	DE 3719283 A1 DE 3851881 D1 WO 8810038 A1 EP 0335917 A1 JP 2500234 T JP 2598502 B2 KR 9210852 B1 US 5111460 A	22-12-1988 24-11-1994 15-12-1988 11-10-1989 25-01-1990 09-04-1997 19-12-1992 05-05-1992
EP 1107500	A	13-06-2001	GB 2357230 A AU 7210600 A CN 1306369 A EP 1107500 A2 JP 2001203674 A NO 20006298 A US 2001021986 A1	13-06-2001 14-06-2001 01-08-2001 13-06-2001 27-07-2001 12-06-2001 13-09-2001